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Chapter 7. Finance Planning Framework

About This Chapter

California water managers have been directed to provide reliable water supplies, reduce flood risks, increase public safety, help grow the economy, and enhance ecosystems. These same demands have been placed on them with an adage of doing more with less during a time of economic downturn, rising public sector debt, and weakening public support for additional investments. This chapter initiates a process to address challenges in financing the programs and activities outlined in earlier chapters.

Chapter 7 establishes a framework in which multiple requirements, perspectives, and previously non-integrated financing information can be considered. Doing so enables stakeholders, collectively and in context, to consider the issues to be addressed and the decisions to be made. The content in this chapter informs and provides the rationale for the finance objective (Objective 17) and related actions (recommendations) in Chapter 8, "Roadmap For Action." This chapter includes:

- Finance Planning Framework Scope and Process
  - Limitations of the Update 2013 Framework
- Key Facts and Findings
  - Demand for Funding
  - Expenditures and Fund Sources
  - Funding and Institutional Organization
- Framework Components
  - IWM Scope and Outcomes
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  - Existing Funding/Expenditures
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  - State Government Role and Partnerships
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- Next Steps

Finance Planning Framework Scope and Process

This chapter reflects a first step in comprehensive integrated water management (IWM) finance planning from the State government's perspective and goals. It serves to guide State government-funded investments in IWM. The investment scope includes IWM programs and projects directly administered by State government, as well as future State government IWM loans and grants distributed as incentives to regional and local governments. This chapter is not intended to direct regional or local finance decisions, and it does not intend to modify existing State investment frameworks for ongoing financial activities, such as distribution of currently authorized General Obligation (GO) bonds. This chapter, in conjunction with Chapter 8, "A Roadmap For Action," provides a path for resolving issues described below and for filling information gaps as required to support effective State IWM finance solutions.

Several State agencies and stakeholders worked together to develop this Finance Planning Framework (Framework). The Framework provides a logical structure and sequence for financial plan development. This chapter is organized and presented in the same order as the eight components of the Framework. It

begins by describing the scope of IWM, as well as the types of IWM activities that should be considered for funding. It then offers background on how existing infrastructure was financed, along with descriptions of historical federal, State, and local water expenditures since 1985.

Along with Chapter 2, "Imperative to Invest in Innovation and Infrastructure," this chapter reflects initial conversations with stakeholders regarding the role of State government in IWM. These conversations were conducted with regard to the costs associated with all State IWM activities. The Framework includes an estimate of the magnitude of California's investment needs at federal, State, tribal, regional, and local levels. To help decision-makers determine how to meet these investment needs, the Framework provides an assessment of alternatives for future revenue sources. This assessment includes a description of appropriate uses of the revenue sources, any constraints and trade-offs involved in the application of the various sources, and current applications of the sources. (See Table 7-2.) The Framework recognizes the need to strategically invest in the near term to avoid greater costs in the long term (i.e., the concept of avoided costs).

Note that the terms finance and fund tend to be used interchangeably, and often refer to the other in their own definition. *Fund* refers to a supply or stock of money. *Funding* refers to making a supply of money available for a need, program, or project. *Finance* refers to the management of money, which could include such activities as borrowing or developing a revenue stream.

Limitations of the Update 2013 Framework

While the *California Water Plan Update 2013* (Update 2013) Framework provides a cornerstone for stakeholders to work collaboratively through critical funding needs and issues, develop durable finance mechanisms, and identify reliable revenue sources, it is not yet a comprehensive IWM finance plan. A comprehensive State government IWM investment strategy recommends programs and itemizes costs, finance mechanisms, and revenue sources. To that end, several remaining finance planning components must be completed that were not fully developed during Update 2013, owing to limitations of data/information, resources, and/or time. The "Next Steps" section of this chapter outlines actions to adapt, develop, and apply the Framework during California Water Plan Update 2018 and beyond. It also describes the activities, tasks, and deliverables that the Update 2013 staff and advisory groups want included in the Framework. It should be noted that even after developing an IWM finance plan, legislators and the governor must take action to implement such a plan.

Key Facts and Findings

Several striking facts and findings emerged in the development of the Framework. Most significantly, there is no single, easily compiled source of information about current and past IWM investments. This lack of integrated information creates several dilemmas. First, simply discussing finance expenditures often devolves into conflict. Second, stakeholders often operate from completely different sets of information prepared for disparate purposes. In most cases, the information is accurate but sometimes incomplete, drawn out of context, and grounded in fundamentally different assumptions. The reliance on information prepared for specific uses to make broader assumptions is problematic.

The Framework evolved as stakeholders worked together to create a common understanding of California's water financing picture. Using a storyboard format, the goal was to establish a financing baseline and shared meaning about the past and current situation.

The facts and findings developed in this process represent a significant step forward in the comprehensive understanding of complex finance mechanisms that, over time, were created in a fragmented fashion. The sections that follow provide an overview of some of the findings and issues to be considered in implementing the Framework.

Demand for Funding

The status of California's water infrastructure, as well as the demands placed upon it, is of national interest. A number of different sources and estimates on demands for funding have been reported. Even with the variation in numbers among experts, the cumulative total is staggering, as demonstrated by the following examples.

An assessment, conducted by the U.S. Environmental Protection Agency in 2011found that California will need $44.5 billion to fix aging drinking water systems over the next two decades (U.S. Environmental Protection Agency 2013). The survey placed California at the top of a national list of states having major water infrastructure needs. In California and elsewhere, the biggest needs involve repairing and upgrading water transmission and distribution lines.

The American Society of Civil Engineers' (ASCE's) *Infrastructure Report Card for America*, is prepared every four years. Structured as a form of a school report card it assigns letter grades to each type of infrastructure. The 2012 report card gave California a "C" and assigned the following investment needs for water infrastructure (American Society of Civil Engineers 2012):

- Levees/Flood Control — $2.8 billion per year.
- Urban Runoff — $6.7 billion per year.
- Wastewater — $4.5 billion per year.
- Water — $4.6 billion per year.

Other key highlights from the ASCE evaluation indicate California has 807 high-hazard dams and only 45 percent of the State-regulated dams in California have an emergency action plan.

Information gathered in preparation of the report *California's Flood Future: Recommendations for Managing the State's Flood Risk* (California Department of Water Resources and U.S. Army Corps of Engineers 2013) provided significant facts and findings regarding flood risk and requirements for funding.

- $575 billion in structures are at risk in the 500-year floodplains. This does not include economic impacts on families, communities, local businesses, and entire regions when worksites and public facilities are closed as a result of flood damage.
- More than $50 billion in existing needs have been identified for flood management projects, which exceeds available funding sources.

The Bay Delta Conservation Plan (BDCP) is a 50-year ecosystem plan designed to restore fish and wildlife species in the Delta in a way that also protects California's water supplies while minimizing impacts on Delta communities and farms. The total estimated cost of implementing the BDCP, over the 50-year permit term, is approximately $24 billion (California Department of Water Resources 2013).

Expenditures and Funding Sources

Cross-cut budgets for IWM activities are not compiled at most levels of government. This makes completion of a full assessment of actual investment and fund sources difficult. Beyond the wide variation in how different entities prepare budgets, the sheer number of entities involved in providing water-related services makes accurately compiling budget numbers a daunting task. At the local level, the funding complexities are especially difficult to navigate because activities often occur in proximity to one another, many projects serve multiple purposes, and many activities have multiple fund sources.

Local Expenditures

Local entities, such as special districts, water districts, utilities, and cities, account for the largest portion of IWM expenditures, and this is expected to continue for the foreseeable future. Annual local expenditures statewide for 2010 totaled about $18 billion, as shown in Figure 7-3. Even with a significant investment by these agencies in water expenditures, the water management community reports that water projects at all levels of government are commonly underfunded.

The costs of ongoing operations and maintenance (O&M) for existing facilities, along with regulatory costs, consume a large portion of local agency budgets. In addition, local agency budgets are often unable to allocate funds for replacing aging infrastructure.

With limited funding sources and unreliable funding, financing and O&M are ongoing challenges for agencies. Some funding issues include:

- Competition among agencies for resources, such as workforce, grants, and technical assistance.
- Competition with other public demands for resources. For example, flood management agencies are often supported by local agency general funds and must compete with other public demands for such resources as transportation, parks, social services, education, and health services.
- Reductions in property tax revenues.
- Costs associated with permitting and mitigation of projects.
- Lack of resources in small agencies to prepare funding applications. For example, some of the information requested on grant or loan applications is not typically collected by the agency and not quickly developed. Also, smaller agencies might not have the resources to prepare an effective application.

Agencies also have difficulty raising matching funds for federal programs. Many of the agencies require federal or State funds for major capital improvements; however, with limited methods of local revenue generation, many agencies cannot access some of the available federal funds because they cannot raise the required matching funds.

Local agencies have indicated that they are often constrained in fully utilizing existing fund sources by various statutes and restrictions that govern financing considerations, per the following examples:

- Flood management agencies report they have substantial resistance to increasing property assessments, as evidenced by the passage of Propositions 13 and 218. The majority of flood management agencies depend on some type of property assessment as a revenue source; however, the ability to increase or initiate property assessments to satisfy revenue requirements has been restricted for some time in California.
- Agencies that are partially funded through development fees or special projects assessments can be limited by assessment-zone boundaries. These assessment-zone boundaries impose substantial

limitations on the uses of funds. This is important because flooding, water supplies, and water quality are sometimes affected by activities occurring upstream of zone boundaries. In addition, the solution or best management action for providing IWM benefits might be located outside the assessment-zone boundary.

State Funding

State government investments since the turn of the century have been directed to specific purposes (such as to the State Water Project) and used to successfully incentivize local investments in water-related projects.

State government expenditures and fund sources have shifted over time. In recent years, use of the General Fund (general tax base) has decreased and use of publicly financed bonds and special-fund sources have increased. Flexibility in utilizing fund sources is also limited at the State level. For example, several State GO bonds have been authorized since 2001, and State government revenues from special projects and fees have steadily increased from about $1.3 billion in 2001 to $2.7 billion in 2010. Nonetheless, funds for supporting specific IWM activities are not easily adapted to changing IWM priorities. Such funding sources are variable (i.e., annual funding levels) and unpredictable. Existing State bond funding for flood management will be depleted by 2018.

Federal Funding

The amount of funding flowing to the State from the federal government has also changed over time. These changes in fund sources reflect the perspectives and priorities of State and federal elected officials, as well as public perception and priorities for certain types of water-related expenditures. For example, federal investment has historically been the primary source of funding for flood management, but in the context of changing federal priorities such investment is decreasing relative to State government and local investments.

For most agencies, federal funds are becoming scarcer. The U.S. Army Corps of Engineers (USACE) process for identifying federal interest in flood risk-reduction projects has historically emphasized damage-reduction benefits, while placing less emphasis on other project output, such as ecosystem restoration, regional economic development, and other social benefits. With the fiscal issues facing the federal government, most agencies believe that federal funding programs will continue to be reduced, if not eliminated. As an example, the USACE might not continue to fund studies or ongoing projects at the same rate as in the past. Also, funding a large number of studies and projects over long periods is inefficient and results in delayed project development and increases project costs.

Operations, Maintenance, and Environmental Mitigation

While there is often funding for new projects, IWM planning and finance have not adequately covered monitoring, operations, maintenance, and environmental mitigation over the life of a project.

Environmental impacts created long ago, known as legacy impacts, no longer have responsible parties to pay for mitigation.

Debt

California voters, in response to drought and flood, have approved several State GO bonds to fund water projects. Because no additional tax or other revenue stream is created with the issuance of bonds over

time, GO bond debt service has taken an increasing share of California's State budget. California currently allocates about 9 percent of its general fund to total GO bond debt service. Out of the 10 most populous states, California ranks just behind New York for the highest debt-to-personal-income ratio (Office of the State Treasurer 2012).

Total authorized water-related bond debt rose from about $3.8 billion in 1999 to $22.9 billion in 2011, about 20 percent of total bond debt. By comparison, total authorized bond debt across all State government activities rose from $38 billion in 1999 to $128 billion in 2011. On a per capita basis, total GO bond debt rose from $1,130 to over $3,400. (See Table 7-4.)

While California is currently carrying a relatively high level of GO bond debt, debt is not the only metric to plan for or by which economic prosperity should be measured. Borrowing remains a necessary and cost-effective method of financing IWM and many other capital-intensive projects. However, there are risks and costs associated with borrowing that should be fully considered in future financing strategies.

Funding and Institutional Organization

Poor alignment of projects among public agencies affects the ability to fund and deliver efficient and economical multiple-benefit projects. In many cases, related IWM activities, such as water supply, flood, and ecosystem management projects, often in the same location or system, continue to be funded separately.

Overlapping — and sometimes conflicting — responsibilities and priorities among the many regulatory agencies complicate and/or increase the cost of protecting human life, property, economic interests, and the environment. While collaboration among the parties can yield significant benefits, in some cases the agencies are constrained by statutory mandates that prevent innovative solutions and expose the agencies to litigation.

Framework Components

The Framework is a first step toward more fully understanding California's financing picture and finding options to improve the current situation. During the Update 2013 process, a finance storyboard was developed through extensive collaboration with the Public Advisory Committee, Tribal Advisory Committee, Finance Caucus, and other Update 2013 participants. It was developed in response to observations and stakeholder input that there was no common language or understanding of the finance methods and issues across California's geographic regions, IWM strategies, or levels of government (e.g., federal, State, tribal, local). The finance storyboard was the thought process that developed into the Framework described in this chapter.

The purpose of the finance storyboard for Update 2013 and beyond is to provide a framework to organize and describe the suite of issues and methods critical for advancing a statewide IWM finance planning effort. It also provided the structure and the flow of logic required to synthesize a large volume of information and stakeholder input, such that it supports the IWM finance objective (Objective 17) and related actions for State policymakers. This storyboard also provided an approach for the diverse California Water Plan stakeholders and planning partners to discuss and develop a common language and understanding about the role of State government funding and investment in IWM activities.

The Framework is organized into eight components:

1. IWM Scope and Outcomes.
2. IWM Activities.
3. Existing Funding/Expenditures.
4. Funding Reliability.
5. State Government Role and Partnerships.
6. Future IWM Costs.
7. Funding, Who and How.
8. Trade-Off Analysis.

Each component represents a topic that stakeholders and planners felt needs to be part of any statewide IWM finance planning effort. The sequence of the components represents the necessary chronology of the planning effort. For example, it is necessary to define the scope of IWM (component 1) before discussing the State Government Role and Partnerships (component 5). It is also necessary to clarify the role of State government before estimating future funding demand for said role. Note that the traditional finance planning topic of apportioning costs and identifying funding methods does not occur until component 7.

The following sections describe each component of the Framework.

IWM Scope and Outcomes

The purpose of this section is to define the scope of State government's future involvement in IWM activities along with the expected outcomes. While the high-level synthesis of IWM benefits can be captured in the three broad categories of public safety, environmental stewardship, and economic stability, the further refinement of benefit descriptions below is more useful as a tool for determining if an activity is within the scope of IWM. The Finance Caucus approached this by describing the benefits intended to be achieved from the State's investment in IWM. If a proposed activity creates one or more of the benefits described in Table 7-1, it is within the scope of IWM.

PLACEHOLDER-Table 7-1 Benefits within the Scope of IWM

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

IWM Activities

This section describes the types of IWM activities that need to occur to generate the benefits identified in the preceding section. This section defines the scope of activities encompassed in the finance objective and related actions detailed in Chapter 8, "Roadmap For Action." The activities described below represent opportunities to produce desired outcomes. This section describes investment categories to be used for guiding State government IWM investment (i.e., generally, categories of various types of projects or programs) in a way that is relevant to regional project-level activities. These investment categories were developed in response to several key findings that indicated a need to clarify and refine the methods for categorizing State IWM investments.

Categorization of future investments also helps formulate multi-objective, multi-benefit solutions comprised of combinations of the activities described below. Through intensive collaboration with the Update 2013 Finance Caucus, the categories presented below also helped build a common language and improving coordination among diverse bureaucracies. This approach will be useful for aligning funding

and finance planning processes across more than 2,300 federal, State, tribal, and local government entities, each with its own planning processes and scales. For example, local entities tend to plan at the project level while State policy-makers tend to plan at a broader level of investment category.

Two primary categories of investment are innovation and infrastructure, which are further broken down into investment sub-categories. These sub-categories could be used for allocating future State government investments.

Innovation includes actions that improve information, institutional, and technological activities essential for supporting IWM. Innovation categories include:

- **Governance improvements** to promote more coordinated and integrated resources planning among State government agencies and with regional collaboratives and federal agencies.
- **Planning/Public process improvements** to promote and incentivize communication, coordination, and collaboration among water planners/managers, land use planners/decision-makers, and other resource managers at the regional and watershed scale.
- **Strengthening government agency alignment** to improve coordination and consistency among federal, State, tribal, and local government agencies' data/information, plans, programs, policies, and regulations.
- **Information technology improvements** to promote and incentivize water data collection, management, distribution, access, and exchange/sharing, as well as analytical methods.
- **Water technology and science improvements** to advance science, improve and commercialize new water/energy technologies, improve data collection and exchange, and develop analytical tools for IWM.

Infrastructure includes structures and facilities that support human activities (grey infrastructure), as well as naturally occurring assets and services such as wetlands, riparian habitat, and watershed systems (green infrastructure). The categories listed below encompass not only the capital cost of constructing a facility or restoring habitat, but also the long-term operation and maintenance costs that have often been an afterthought to implementation and not adequately financed over their useful life (i.e., the accumulation of significant deferred maintenance and aging infrastructure). Infrastructure categories include:

- **Local and regional projects,** including projects contained in integrated regional water management (IRWM), capital improvement, urban water management, and many other local plans. These plans would include different mixes of the California Water Plan's 30 resource management strategies, depending on the region/location.
- **Inter-regional projects** that would benefit two or more regions.
- **Statewide systems** for water, flood, water quality, ecosystems, and wastewater management that provide statewide benefits.

Existing Funding/Expenditures

This section specifies the levels and sources of recent and current IWM expenditures. It includes a brief summary of historical federal, State, and local expenditures based on the defined scope of IWM. Much more detailed data, metadata, and information on this topic are included in Volume 4, *Reference Guide*.

Historical Overview

Historically, funding for water management in California has been provided by a combination of federal, State, and local agencies. Figure 7-1 shows the general historical spending and funding eras over the past

160 years, using broad categories. Starting with the Gold Rush, initial major infrastructure was put in place to bring land into production. Over the next several decades, multipurpose infrastructure projects were built. In the latter decades of the 1900s, investment shifted to include environmental protection projects. Shifts in financing eras are a result of major events, natural and human, and are generally reactive in nature. This past decade has seen several State bonds passed for infrastructure purposes, including flood management, as well as significant federal funding. More information on historical funding can be found in Chapter 3 and in Volume 4, *Reference Guide*.

PLACEHOLDER Figure 7-1 History of Funding for Water Management in California

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Local, State, and Federal Expenditures, 1995-2010

Figure 7-2 illustrates the average proportion of water management expenditures by local, State, and federal agencies between 1995 and 2010. Local agencies account for the largest portion of expenditures, averaging $14.6 billion per year, followed by State agencies at $1.9 billion and federal agencies at $805 million per year. Expenditures vary over time, depending on factors such as State and federal appropriations and bond measures.

PLACEHOLDER Figure 7-2 Recent Annual Expenditures on Water Management in California, 1995-2010

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Figures 7-2 and 7-3 show that local agencies are responsible for the majority of the total expenditures. Between 1995 and 2010, annual project expenditures for water management in California ranged from approximately $12.5 billion to $21.7 billion, as shown in Figure 7-3. This figure shows total expenditures for IWM in California by local, State, and federal agencies. Local expenditures include water management activities by city, county, and special districts. State-level expenditures include water management activities in the Natural Resources Agency and California Environmental Protection Agency and general government. Federal expenditures include water management activities in California by federal agencies. Between 1995 and 2010, there were significant short-term bond infusions of funding for specific State projects. In Fiscal Year 2008-2009, federal expenditures had a one-time increase for shovel-ready projects owing to the passage of American Recovery and Reinvestment Act.

PLACEHOLDER Figure 7-3 Recent Trends in Local, State, and Federal IWM Expenditures (in millions), 1995–2010.

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Funding Reliability

This section provides a high-level description and qualitative summary of funding sources for IWM currently being used or that have been proposed in the past, and the role of State government bonds. More information on this topic can be found in Chapter 2, “Imperative to Invest in Innovation and Infrastructure.”

The future of water financing in California remains uncertain. Water management strategies are being integrated, but water management funding is still fragmented, thus limiting opportunities for further investment in water innovation and both green and grey infrastructure. Future financing mechanisms will need to capitalize on federal, State, tribal, regional, local, public, and private cost-sharing. Even with further integration, securing adequate funding will require innovative financing mechanisms, such as those used for other public infrastructure (e.g., transportation).

There is no single approach, mechanism, or revenue source for developing a reliable funding portfolio for IWM. Reliable funding will be driven by State, regional, and local interests, and solutions will need to be considered at a regional and/or local scale.

The financing mechanisms and revenue sources described below are presented in Update 2013 as an inventory of tools for advancing IWM activities and programs.

Funding Mechanisms and Revenue Sources

System capital improvements and ongoing O&M costs are typically financed with cash-on-hand or by issuing debt. Cash financing is often supported by user fees or taxes that support a general fund. User fees include volume-usage charges and service fees that typically are fixed, such as residential connection charges. Cash is typically used to pay for O&M costs, while larger capital project costs are primarily financed by issuing debt. Debt financing includes various types of bonds, ranging from GO bonds, which are backed by the General Fund, to builder revenue bonds, which are backed by special assessment districts. Access to different types of capital markets varies across State government and local agencies.

Federal finance strategies usually involve the federal treasury and finance water management projects selected based on benefit-cost analyses. Direct project beneficiaries reimburse the costs through user fees. For example, Central Valley Project (CVP) water supply contractors pay for water deliveries that finance CVP costs.

State government uses bonds to finance new water-management capital projects, including GO bonds and revenue bonds. GO bonds are backed by the taxing power of the State government and are paid off from the General Fund with interest. Financing for water infrastructure by State government has increasingly relied on GO bonds in recent years. GO bonds provide an infusion of capital to finance construction but may not adequately provide for O&M or ongoing repair costs. State government also uses lease-revenue bonds, which are similar to GO bonds but are not backed by the General Fund and do not require voter approval. Revenue bonds are not supported by the General Fund and are repaid by another revenue stream, typically user fees. (See Box 7-1 for a description of taxes versus fees.)

PLACEHOLDER Box 7-1 Taxes vs. Fees

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Local agencies primarily finance water management projects with revenue bonds. Revenue bonds carry a higher interest cost than GO bonds. Some projects are financed by local GO bonds backed by local property taxes, although this is less common because of the two-thirds voting requirements from Proposition 218. Local agencies additionally have access to state revolving fund (loan) programs and

state-funded local assistance grants. These typically involve cost-sharing between local and state government agencies.

Table 7-2 summarizes water management revenue sources that have been used or considered by State government and local agencies. Their appropriate uses, feasibility, key trade-offs, and applicability in California for these revenue sources are also described in Table 7-2.

PLACEHOLDER Table 7-2 State and Local Water Management Revenue Sources

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Federal Revenue Sources

Besides the annual contributions that federal government makes to the Clean Water and Drinking Water State Revolving Funds, several federal revenue sources could provide funding for California IWM. Depending on actions by Congress, funding may be available to the State or local governments. One of the most significant contributors of federal funds over the past few decades has been the Water Resources Development Act.

Water Resources Development Act

The Water Resources Development Act (WRDA) refers to a series of public laws enacted by Congress to deal with a range of water resources issues. The first WRDA, passed in 1974 (Public Law 93-251), amended the Flood Control Act of 1954 and authorized the USACE to undertake projects with additional purposes, such as navigation. There have been 10 WDRAs passed since 1974, with the latest passed in 2007. Over the years, it has been expanded to consider other purposes, such as ecosystem improvements, water resources development, and water conservation.

Congress is currently considering a 2013 WRDA introduced in May. As it is currently written, the legislation would establish a 5-year innovative project financing pilot program. This new pilot program would provide loans and loan guarantees for important flood management, water supply, and wastewater projects.

PLACEHOLDER Box 7-2 Federal Funding Sources

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

California General Obligation Water Bonds

This section summarizes data for California water bonds issued between 1970 and present, and other GO bond debt, including schools and other infrastructure, to place the level of water bond debt into context. The intent of this section is to capture what is currently referred to as IWM, which includes water supply, water quality, ecosystem, and flood-management bonds. These water-related bonds have made up a larger portion of total bond debt in recent years. The trend shows an increase in GO bond financing of water projects as a portion of total GO bonds. Revenue bonds are also an important source of financing for capital projects, which are not supported by the General Fund and are generally used by local agencies, though they are not discussed in this section summary.

Table 7-3 summarizes water management-related bonds that were passed in California. In 2010 dollars, a total of $32.4 billion in water bonds have been approved in California since 1970. Of this total, $23.2 billion, or 71 percent, of the water bonds were passed since 2000. This shows the pronounced increased reliance on bonds for financing water infrastructure. On California's total GO bond debt of $127.6 billion, the debt service is currently about 9 percent of the General Fund (see Table 7-4).

PLACEHOLDER Table 7-3 California General Obligation Water Bonds from 1970 to Present

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

State GO bonds have become an important source of IWM funding. GO bonds are a fluctuating revenue source because of the intermittent nature of bond approval and sales, making them a somewhat unpredictable and unreliable revenue source for water projects. Table 7-4 shows total authorized state GO bonds as of 1999, 2005, and 2011. Total water bonds were $3.8 billion in 1999, accounting for approximately 10 percent of total authorized State bonds; and increased to $22.9 billion by 2011, or 18 percent of total authorized bonds, largely as a result of Propositions 1E and 84. Currently authorized water-related GO bonds are expected to be fully allocated by 2018.

PLACEHOLDER Table 7-4 Total Authorized GO Bond Debt in California (in billions)

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Figure 7-4 shows that funding for IWM projects has gradually increased as a portion of total bond funding — 10 percent of the total in 1999 to 18 percent by 2011.

PLACEHOLDER Figure 7-4 Total Authorized State General Obligation Bonds in California

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Figure 7-5 illustrates outstanding GO bond funding for water-related activities over time. Authorized GO bonds and federal funding accounted for approximately two-thirds of total water management expenditures in FY 2012. In recent years, State bond funds have become a larger portion of total water-related investments in California, as federal expenditures have stayed the same or decreased. Annual debt service for outstanding water bonds is approaching $80 per household because water bonds make up a larger proportion of water funding. By comparison, when distributed equally among all households in the state, the total annual debt service amounts to $365 per household (see Volume 4, *Reference Guide*, the article "[under development].").

PLACEHOLDER Figure 7-5 General Obligation Water Bond History, 1970-2012

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

State Government Role and Partnerships

This section summarizes the current and future role of State government to support and advance IWM regionally and statewide. It includes a description of current and future State government obligations and commitments, as well as of its role in investing in IWM innovation and infrastructure. A more detailed

description of State government's role can be found in Chapter 2, "Imperative to Invest in Innovation and Infrastructure."

In the history of water development in California, the role of federal and State governments has been demonstrated by their investments in water and flood management infrastructure to promote growth and economic development in rural, suburban, and urban communities. These investments resulted in major projects that crossed watersheds and/or had broad-based public benefits. During the past few decades, government's role has also included environmental protection and enhancement. More recently, State government is promoting multi-benefit IWM programs and projects with more sustainable outcomes, and ensuring that disadvantaged communities have safe water and sanitation. (Refer to the "Shared Values for State Government Investment and Prioritization" section of this chapter.)

Basic Obligations

The obligations of State government include:

- **Representing California in government-to-government interactions** with the federal government, other states, and other sovereign nations and tribal governments.
- **Meeting basic public health and safety needs for all Californians** by regulating minimum public health standards and by providing assistance to communities that are unable to meet regulations.
- **Protecting public trust resources** by regulation and in planning and allocation of water resources. The public trust doctrine recognizes that certain natural resources, including water, tide and submerged lands, the beds and banks of navigable rivers, and fish and wildlife resources are owned by the public and held in trust for present and future generations of Californians.
- **Protecting unique real property interests**. The State has a fundamental responsibility to California taxpayers to protect the real property assets owned by the State and reduce State liabilities.

Commitments and Responsibilities

- **Operate and manage the State Water Project.** State government is the owner and operator of the State Water Project (SWP) and has the responsibility (and contractual commitments) to provide reliable water supplies to the water contractors, the financiers and beneficiaries of the SWP.
- **Plan, implement, and maintain the State Plan of Flood Control.** State government has responsibility for providing assurances to construction access, operations, and maintenance for portions of the State's federally authorized flood protection system.
- **Planning, policy research and technical assistance.** State government performs many critical planning and research activities in support of resource management (executive, legislative, and local government) decisions and advancing water science and technology**.**
- **Integrate water rights and water quality planning.** Basin plans are prepared for each of the 10 hydrologic regions and by statute become part of the California Water Plan.

Investing in Innovation and Infrastructure

State government has and should take a leading role in investing in innovation and infrastructure actions for the benefit of all regions. Innovation includes a broad range of activities that comprises governance, planning, and process improvements; data; tools; and water technology research and development. State government can also demonstrate leadership by serving as a facilitator and clearinghouse of innovation to

ensure that new solutions are fully utilized throughout the state. The State's investment in innovation provides processes and information that aid decision-making throughout the state and support more cost-effective infrastructure investments by regional and local entities.

State government has and should continue to invest in water infrastructure — natural (green) and built (grey) — in partnership with federal, tribal, regional, and local governments; non-profit organizations; the business community; and private entities.

State government investments should focus on actions that:

- Regions and communities cannot accomplish on their own.
- Involve interregional, interstate, or international issues.
- State government can do more efficiently and/or cost-effectively (i.e., providing a high return on investment to the benefit of the state's taxpayers).
- Provide broad public benefits.
- Remediate legacy environmental impacts.

Future IWM Costs

This section summarizes anticipated total future IWM costs throughout California and across federal, State, tribal, and local governments. Owing to many data gaps and lack of a consistent methodology, Update 2013 includes a preliminary and cursory estimate of future IWM costs. Additional engineering, economic, and risk characterization studies are needed to develop more accurate projections of California's future IWM funding needs (see the "Next Steps" section, below). That said, based on recent and existing IWM expenditures and a reasonable assumption of needed near-term innovation and infrastructure, it is estimated that at least $200 billion is needed over the next decade. This estimate assumes that future average annual IWM expenditures over the next 10 years would occur at approximately the same rate as current annual expenditures ($20 billion per year as shown in Figure 7-3). Because authorized GO bonds are almost fully allocated, and federal and State general fund IWM allocations are declining, new finance mechanisms and revenue sources will be needed to sustain current annual expenditure levels. The majority of all IWM investments in California during the next decade will go toward meeting infrastructure needs. A smaller but important portion will go toward innovation to increase return on IWM investments.

The estimate of $200 billion needed for innovation and infrastructure over the next decade encompasses federal, State, and local investments. Local entities will pay the majority of these costs. State government investment in innovation will be only a small portion of this estimate, perhaps less than a few hundred million dollars. State government investment in infrastructure, including financial incentives and cost-sharing with federal, local, and private partners, will depend on future authorizations, funding mechanisms, and revenue sources (as described in the "Funding Mechanisms and Revenue Sources" section, above).

The California Flood Future Report identified more than $50 billion in needs for specific projects and improvements that are now in the planning cycle. These projects (mostly site specific) collectively would not provide statewide protection from the 100-year storm event. The total investment needed to reduce risk against the 500-year flood event is assumed to be several times the $50 billion amount. This is based on the 5.8-million increase in population exposed within the 500-year floodplains, compared with 1.4 million in the 100-year floodplain. Despite this risk, willingness to fund flood management for a 500-year storm event has not been demonstrated. For this reason, a conservative estimate for flood

management investments, based on what Californians would be willing to accept and pay for, could be at least twice the $50-billion estimate for existing proposed projects, or more than $100 billion.

As previously mentioned, ASCE's 2012 *Infrastructure Report Card for America* gave California a "C" and assigned the following investment needs for water infrastructure:

- Levees/Flood Control — $2.8 billion per year.
- Urban Runoff — $6.7 billion per year.
- Wastewater — $4.5 billion per year.
- Water — $4.6 billion per year.

An assessment, conducted by the U.S. Environmental Protection Agency in 2011 found California could use $44.5 billion to fix aging drinking-water systems over the next two decades (U.S. Environmental Protection Agency 2013). The survey placed California at the top of a national list of water infrastructure needs. In California and elsewhere, the biggest need was for repairing and upgrading water transmission and distribution lines.

The BDCP is a 50-year ecosystem plan designed to restore fish and wildlife species in the Delta in a way that also protects California's water supplies while minimizing impacts on Delta communities and farms. The total estimated cost of implementing the BDCP, over the 50-year permit term, is approximately $24 billion (California Department of Water Resources 2013).

As another estimate of future IWM costs, there are approximately 10,000 water projects identified by the state's 48 IRWM regional water management groups. Although it is unlikely that every project would be implemented, the total cost of these projects would be several hundred billion dollars.

Funding, Who and How

This section frames the discussion for future IWM financing mechanisms and revenue sources. It describes shared values for guiding State government investments and prioritization, how to allocate State government funding, and desired attributes of future financing mechanisms and revenue sources. More information can be found in Chapter 2, "Imperative to Invest in Innovation and Infrastructure," and in Volume 4, *Reference Guide*.

Shared Values for State Government Investment and Prioritization

An essential first step completed during Update 2013 was identifying shared values to guide decisions related to the Framework. The shared values described below are intended to guide IWM decisions regarding investment and prioritization of State government funds. The scope includes IWM programs and projects directly administered by State government, as well as future State IWM loans and grants that are allocated as incentives to tribal, regional, and local governments. These values can also guide preparation of future criteria for State government funding. These values are not intended to direct tribal, regional, or local finance decisions, and they are not intended to modify existing State investments or ongoing financial activities, such as the allocation of currently authorized GO bonds. The shared values are also not intended to provide guidance for financing of specific projects at any scale (statewide, inter-regional, regional, tribal, or local).

The shared values developed for Update 2013 are grouped into three categories: Prioritization of State Government Investments, Fiduciary Responsibility, and Beneficiary and Stressor Responsibility.

Prioritization of State Government Investments — Investment decisions will include equal regard for economic, environmental, and social criteria.

- Decisions are informed and priorities are set using a process that includes broad stakeholder interests and public participation.
- Preference is given to multi-benefit projects that meet regional or statewide interests.
- Cost and benefit data used in the analysis include monetary and nonmonetary life-cycle costs and benefits with an emphasis on long-term planning. Stranded costs are avoided, and all costs during the life of a project are included in the analysis, such as monitoring, planning, construction, operation, maintenance, mitigation, business disruptions, and externalities.
- Decisions are made using best available data and knowledge, understanding that deferring decisions in anticipation of better information can increase cost of implementation, create hesitation, and miss opportunities to achieve benefits.

Fiduciary Responsibility — State government will be fiscally responsible with State funding.

- Investment decisions account for the availability of future revenues, cost of borrowing, and risks of indebtedness. This includes matching investments with appropriate funding mechanisms and revenue sources.
- Good stewardship of State government funds includes transparency, accountability, discipline to spend reasonably, clarity of purpose, and personal integrity by those entrusted with public funding. Good stewardship engenders trust and increases the public's willingness to pay for future IWM activities.
- State government funding is not redirected from its authorized purpose.
- Amount of time needed to repay debt does not exceed the life of a project. This value applies to fiscal, natural, and all other emergencies.

Beneficiary and Stressor Responsibilities — Those receiving benefits or creating impacts pay for them.

- When beneficiaries can be identified, those receiving benefits pay for them. A nexus and proportionality is established between charges and benefits. This value recognizes the concept of equity regarding value exchange (i.e., paying in proportion to what you receive).
- State government has a responsibility to help communities that cannot help themselves. State funding is also appropriate for helping communities meet State regulations that they cannot fully cover.
- State funding pays for broad statewide benefits.
- State government pays for persistent impacts from historical activities that are no longer creating impacts of the same type or magnitude (legacy impacts), but only in cases where stressors cannot be identified or no longer exist. In some cases, legacy impacts may go unaddressed indefinitely.
- State funding is proportional to the broad public interest. Assignment of costs to entities that currently engage in an activity that involves an area affected by legacy impacts is limited to the entities' current impacts (not legacy impacts). Some legacy impacts may need to be addressed before costs are assigned.

Attributes to Frame Future Deliberations

Update 2013 discusses better organizational alignment of State agencies as a way to expedite implementation of IWM activities and reduce the cost of delivering IWM benefits. (See Chapter 4,

"Strengthening Government Alignment," for more details.) One way to improve State government IWM finance is through a more coordinated and consistent funding approach across State government. Such an approach could also provide an opportunity to implement several components of the Framework and advance the shared values for State government investment and prioritization. A coordinated funding approach needs to be designed to increase return on investment, enhance accountability, and improve consistency and efficiency. Other goals for new approaches include allocating State dollars to leverage federal and private funding, increase local flexibility to reflect local and regional conditions, and to advance regional goals and investment priorities with grants and loans. Future deliberations should include, but are not limited to, the following attributes:

- Funding mechanisms that provide a consistent financing framework for State government investments in IWM and achieve the following:
  - Improve cost effectiveness, efficiencies, and accountability.
  - Avoid stranded costs and funding discontinuity.
  - Leverage funding across State government agencies.
  - Increase certainty of desired outcomes.
- Prioritization based on shared funding values, defined principles, goals, objectives, and criteria.
- Prioritization method and rationale for apportioning IWM investment by the categories and subcategories developed in the Update 2013 Framework (i.e., innovation and infrastructure).
- Methods for enhancing stewardship of State government monies at both statewide and regional scales, including strategies to improve the transparency and accountability of State fund disbursements.

Trade-Off Analysis

This section outlines a proposal to develop a decision support system to examine funding scenarios and help analyze trade-offs. More information can be found in Chapter 6 and Volume 4, *Reference Guide*.

California faces tough decisions and trade-offs to allocate increasingly scarce funds to support IWM. Water management must compete for financial resources with a myriad of other infrastructure demands. When investment needs exceed existing available funding levels, it becomes increasingly important for decision-makers to prioritize new water projects while accounting for the trade-offs.

IWM decisions typically involve some type of collaborative process. The decision process can be characterized by two fundamental components, decision support and decision-making. Decision support involves consideration of the entire system and how (or if) a potential project fits within existing infrastructure and policies. Decision-making requires additional information, such as selection criteria, availability of funds, and project costs and benefits. The decision-making process typically results in some type of ranking of alternatives, whereas the decision support process evaluates how a project fits within a system.

A consistent and understandable framework for displaying important costs, benefits, and other impacts of potential projects can help inform these decisions. A Decision Support System (DSS) is a general term for a computer-based approach to provide structured and consistent information for decision-making. When options are numerous, interrelated, and have complex effects, decision-makers need to be able to screen the options, eliminate those that clearly do not meet the project goals and criteria, and identify a smaller number of scenarios that warrant further consideration and analysis. Both the screening step and the detailed analysis step can be greatly assisted by a DSS.

Next Steps

This section proposes actions to adapt, develop, and apply the Framework during Update 2018 and beyond. It describes many activities, tasks, and deliverables that the Update 2013 staff and advisory groups want included in the Framework but were not completed during the Update 2013 process. In addition to the actions below to improve the Framework, Chapter 8, "Roadmap For Action," contains a finance objective together with several related actions to improve the financing of IWM activities in California.

While the Framework is intended to guide decisions on state government funding, there is value in considering the Framework as a tool for identifying and sequencing all relevant finance planning activities at any level of government. Future water plan updates will continue to advance and refine the Framework. Future work is expected to consider each component (as developed by the Finance Caucus for the Finance Storyboard) of the Framework in the following ways:

- **IWM Scope and Outcomes (Component 1)** — Revisit, clarify, and adapt the scope of IWM to changing conditions and priorities.
- **IWM Activities (Component 2)** — Develop more specificity regarding the types of activities that State government should invest in with a clearer nexus to the types of anticipated benefits.
- **Existing Funding (Component 3)** — Continue to compile and synthesize data that tracks historical water-related expenditures across local, State, and federal governments in California.
- **Funding Reliability (Component 4)** — Work with the State Agency Steering Committee to identify where potential funding gaps exist between the State IWM activities described in component 2 and existing funding levels and sources. Collaborate with regional water management groups to do the same for local and regional IWM activities.
- **State Role and Partnerships (Component 5)** — Continue to clarify and elaborate on the future role of State government to support a more specific description and estimate of future costs.
- **Future Costs (Component 6)** — Estimate future funding demands by (a) launching IRWM, city, county, and special-district data pull, and (b) working with the State Agency Steering Committee to estimate the funding demand for existing and future IWM activities.
- **Funding, Who and How (Component 7)** — Continue to collaborate with stakeholders and federal, State, tribal, and local governments to investigate and develop finance mechanisms and revenue sources that address the facts and findings detailed in this chapter. Future deliberations should include, but are not limited to, the following attributes:
    - Funding mechanisms that provide a consistent financing framework for State government investments in IWM and achieve the following:
        - Improve cost effectiveness, efficiencies, and accountability.
        - Avoid stranded costs and funding discontinuity.
        - Leverage funding across State government agencies.
        - Increase certainty of desired outcomes.
    - Prioritization based on shared funding values, defined principles, goals, objectives, and criteria.
    - Prioritization method and rationale for apportioning IWM investment by the categories and subcategories developed in the Update 2013 Framework (i.e., innovation and infrastructure).
    - Methods for enhancing stewardship of State government monies at both statewide and regional scales, including strategies to improve the transparency and accountability of State fund disbursements.

- **Trade-Off Analysis (Component 8)** — State government should develop a DSS to provide guidance and leadership for defining uncertainties of future cost, benefits, prioritization, and other trade-offs. The DSS would inform prioritization of State government expenditures, estimation of expected IWM benefits, and methods for apportioning costs across financiers. It also includes developing a clear and consistent methodology for identifying public benefits associated with the entire range of IWM activities.

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Table 7-1 Benefits within the Scope of IWM

IWM Benefit Type	Definition
Affordability	Occurrence of water supplies of sufficient quality, certainty and cost to enhance or serve disadvantaged communities, sustain diverse portfolios existing and future of economic activities as well as achieve water costs that enable, at a minimum, current levels of standard of living.
Drought Damage Reduction	The magnitude and probability of economic, social or environmental consequences that would occur as a result of a sustained drought.
Energy	Efficient use, or increases in production/recovery of, energy associated with managed and unmanaged water use, storage, treatment, distribution and/or reuse.
Environmental	Preservation or restoration of the fish, wildlife, natural processes/functions, habitat and other aquatic resources for the continued viability of natural heritage, self-sustaining ecosystems and/or biodiversity. (e.g. recovery of sensitive species, control of invasive species, adequate water supply and quality)
Flood Damage Reduction	Reduce the adverse impacts of floods to human and natural systems through a portfolio of structural and non-structural measures that address their vulnerability, exposure and recovery during flood events. This includes pre-flood planning and hazard mitigation, emergency preparedness and response activities, and post-event repairs (including environmental infrastructure repairs).
Food Security	Adequate reliability, affordability, and supply of water, land and other natural resources to reliability to support domestic production of food, fiber, livestock, and other farm products to meet current and forecasted consumer demands.
Fuel Load Management	Fuel reduction involving the modification of vegetation in order to reduce potential fire threat, reduce the risk of high severity wildfires thereby; (1) preserving water quality and natural water treatment processes within watersheds; (2) avoidance of downstream sedimentation impacts on water supply; and/or (3) improve wildlife habitat capability, timber growth, or forage production.
Groundwater Overdraft Reduction	Avoidance of the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average conditions.
Operational Flexibility and Efficiency	Optimization of existing legal, operational and management procedures for (and/or physical modifications to) existing water management faculties to improve the efficiency of existing water operations or uses (e.g., irrigation)
Reduce Climate Change Impacts	Development and implementation of strategies that improve resiliency, reduce risk, and increase sustainability for water and flood management systems and the ecosystems upon which they depend.
Water Dependent Recreational Opportunity	Opportunities for water-dependent recreation for California's residents, communities and visitors now and into the future (e.g. skiing, fishing, kayaking, etc)
Water Quality	Chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose or beneficial use for the enhancement or preservation of public and environmental health
Water Supply and Supply Reliability	Occurrence of water supplies of sufficient quality and certainty to enhance or sustain and grow current types and levels economic activities, ecosystem health and maintain quality of life

Table 7-2 State and Local Water Management Revenue Sources

Revenue Source	Appropriate Uses	Feasibility	Key Tradeoffs	Application in California
General Fund	Activities that benefit the general public	Available each year, but subject to competing uses	Funds are limited	A common source of funding
General Obligation Bonds	Projects that benefit the general public	Commonly used	Subject to a vote	Commonly used, but some concern about getting future bonds approved
Revenue Bonds	Projects where a dependable revenue stream is available	A standard method of financing	None	A typical method of financing for local and state projects
User Fees	Projects where direct beneficiaries are easily identified.	Potentially works well with clearly defined beneficiaries, less likely to work for projects with significant public benefits.	Will focus projects to those with local scope which may undermine IWM efforts. May limit state's ability to increase fees and taxes to support other projects.	State Water Project is an excellent example as over 90% of project cost will be repaid by direct beneficiaries (contractors)
Assessment Districts	Can be formed by majority vote but must support local projects that do not provide a "general" public benefit. Water and storm water projects are generally allowed under assessment districts.	The state could coordinate with local agencies to establish assessment districts.	Assessment districts cannot be used to support general public benefits and, as such, will tend to focus on local projects.	1911 and 1913/1915 assessment districts are widely used by local agencies in California.
Utility User Tax	Earmarked for a special purpose or used as a general tax	Used by many cities and a few counties	Has to be approved by a ballot measure.	Widely used by cities
Impact Fees	Used by local governments to charge new development for the additional cost imposed on existing public infrastructure.	Impact fees are generally used in over 90% of local governments in California, thus there is limited opportunities for further expansion.	Deters new development.	Widely used in California
Statewide Water Use Fee (Proposed in 2006 and 2011)	Would have been used for state water management activities	Failed to move forward in 2006 and 2011	Could impact local agencies ability to generate local revenues	Would require a vote

Revenue Source	Appropriate Uses	Feasibility	Key Tradeoffs	Application in California
Public Goods Charge	Could fund a variety of IWM activities	Was approved for electricity but sunset in 2011. Never has been tried with water.	Could impact local agencies ability to generate local revenues	Not yet tried in California, would need a two-thirds vote
Mello-Roos Special Taxes	Areas with new development. It is possible to establish Community Facility Districts (CFDs) in other areas, but this requires a majority vote by residents to tax themselves.	CFDs are most feasible during strong housing markets when there is significant new development.	When housing markets and development slows, forming additional CFDs is difficult and there may be concerns with revenues to pay back existing bonds.	Recently used to finance the Bear River Levee Setback project in Yuba County
Private Investors	Local water projects that generate revenue	Typically have been used as part of design-build process	Interest rates are higher than public debt, can't be used on state projects	Limited to local projects
Private-Philanthropic	Traditionally has been used for ecosystem projects	Commonly used	Not a predictable revenue source	Widely used in California

Table 7-3 California General Obligation Water Bonds from 1970 to Present

Year	Title	Base Amount (millions)	In 2010 Dollars (millions)
1970	Clean Water Bond Law of 1970 (Prop. 1)	250	1,504
1974	Clean Water Bond Law of 1974 (Prop. 2)	250	1,028
1976	California Safe Drinking Water Bond Law of 1976 (Prop. 3)	175	606
1978	Clean Water and Water Conservation Bond Law of 1978 (Prop. 2)	375	1,123
1982	Lake Tahoe Acquisitions Bond Act (Prop. 4)	85	185
1984	California Safe Drinking Water Bond Law of 1984 (Prop. 25)	75	150
1984	Clean Water Bond Law of 1984 (Prop. 28)	325	651
1984	Fish and Wildlife Habitat Enhancement Act of 1984 (Prop. 19)	85	170
1986	Water Conservation and Water Quality Bond Law of 1986 (Prop. 44)	150	290
1986	California Safe Drinking Water Bond Law of 1986 (Prop. 55)	100	193
1988	California Safe Drinking Water Bond Law of 1988 (Prop. 81)	75	138
1988	California Wildlife, Coastal, and Park Land Conservation Act (Prop. 70)	776	1,427
1988	Water Conservation Bond Law of 1988 (Prop. 82)	60	110
1988	Clean Water and Water Reclamation Bond Law of 1988 (Prop. 83)	65	120
1996	Safe, Clean, Reliable Water Supply Act (Prop. 204)	995	1,471
2000	Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act (Prop. 13)	1,970	2,632
2000	Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (Prop. 12)	2,100	2,805
2002	California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002 (Prop. 40)	2,600	3,305
2002	Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Prop. 50)	3,440	4,372
2006	Disaster Preparedness and Flood Protection Bond Act of 2006 (Prop. 1E)	4,090	4,385
2006	Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Prop. 84)	5,388	5,777

Table 7-4 Total Authorized General Obligation Bond Debt in California (in billions)

Category	1999	2005	2011
Miscellaneous	1.7	2.5	3.3
Correctional	4.1	4.1	2.8
Total Water Bonds	**3.8**	**14.0**	**22.9**
Transportation	5.6	7.2	40.0
Education	22.4	51.1	58.6
Total	**37.7**	**78.9**	**127.6**
Per Capita	1,127.2	2,191.9	3,407.9

Source: State of California 2010

Figure 7-1 History of Funding for Water Management in California

Theme of Era				
Development and Growth	Federal Investment	Infrastructure Expansion	Water Resources Development / Protection	Current State Bond Funding
Significant Actions				
• Construction of dams, canals and levees for transportation, agriculture and water supply occurred throughout this period in the Central Valley, Bay Area and, most notably, in the Sac/S.J. Delta	• Central Valley Project • USACE and Bureau of Reclamation involvement in water conservation, water supply, flood management, and wildlife protection projects	• State water project constructed • National Flood Insurance Act of 1968 • Continued flood infrastructure development	• Water Resources Development Act passed (1974, 1976, 1986, 1988, 1990, 1992, 1996, 1999, 2000, 2007) • State and Federal environmental laws enacted (Clean Water Act, Endangered Species Act, California Endangered Species Act California Environmental Quality Act)	• State bond funded infrastructure improvements, planning and emergency management preparedness projects
Financing Mechanisms				
• Levee construction by land owners and reclamation districts • Federal funding of flood control projects (e.g. Los Angeles River and, Sacramento River Flood Control Project)	• Flood Control Act of 1928 – Authorized the USACE to construct projects on the Sacramento River for flood control • Flood Control Act of 1944 authorized the Lower San Joaquin River & Tributaries Project	• General obligation bonds for State Water Project • Utility rates, revenue bonds ,and fees fund local agency projects • 1973 statute required local and State cost sharing of projects (Senate Bill 399 Sec 12585.2 of the California Water Code, Amended in 1973 (Chapters 893))	• Clean Water Act funds variety of Federally authorized projects • 1973 Way Bill (California Water Code §12980-12991) set requirements for State funding of non-project levee maintenance and improvement costs	• Passage of several Propositions with IWM components •Prop 13 •Prop 12 •Prop 40 •Prop 50 •Prop 1E •Prop 84 •2014 Bond (potential)

Figure 7-2 Recent Annual Expenditures on Water Management in California, 1995-2010

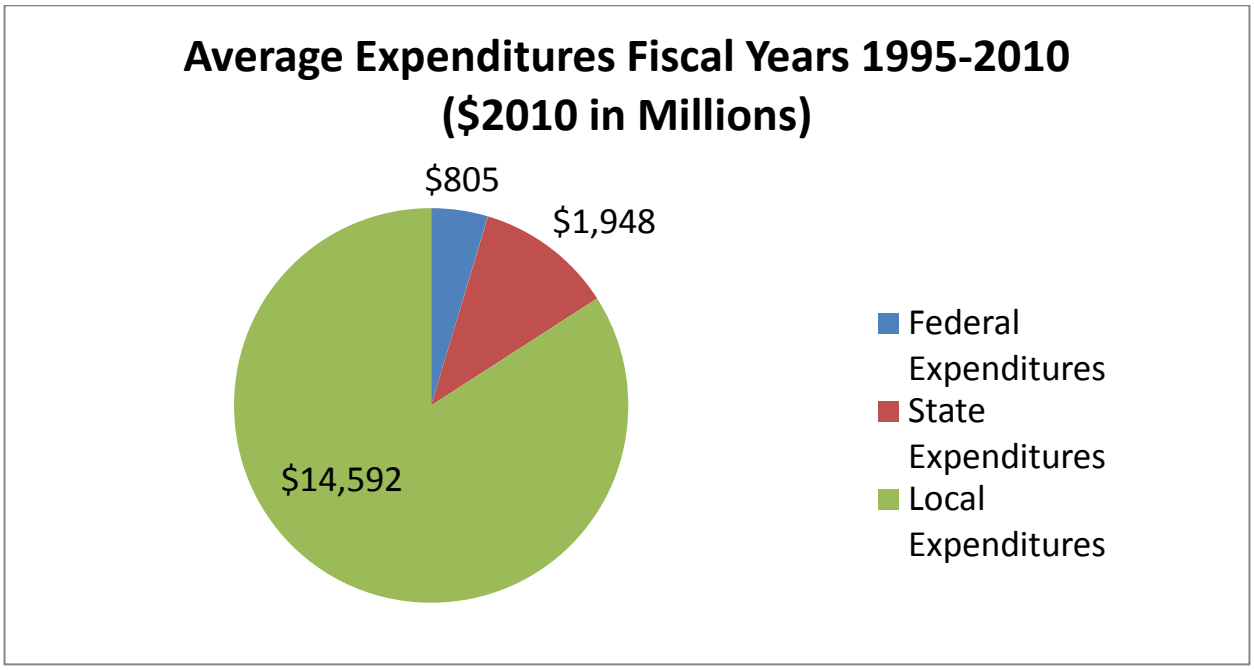


Figure 7-3 Recent Trends in Local, State, and Federal IWM Expenditures (in millions) 1995-2010

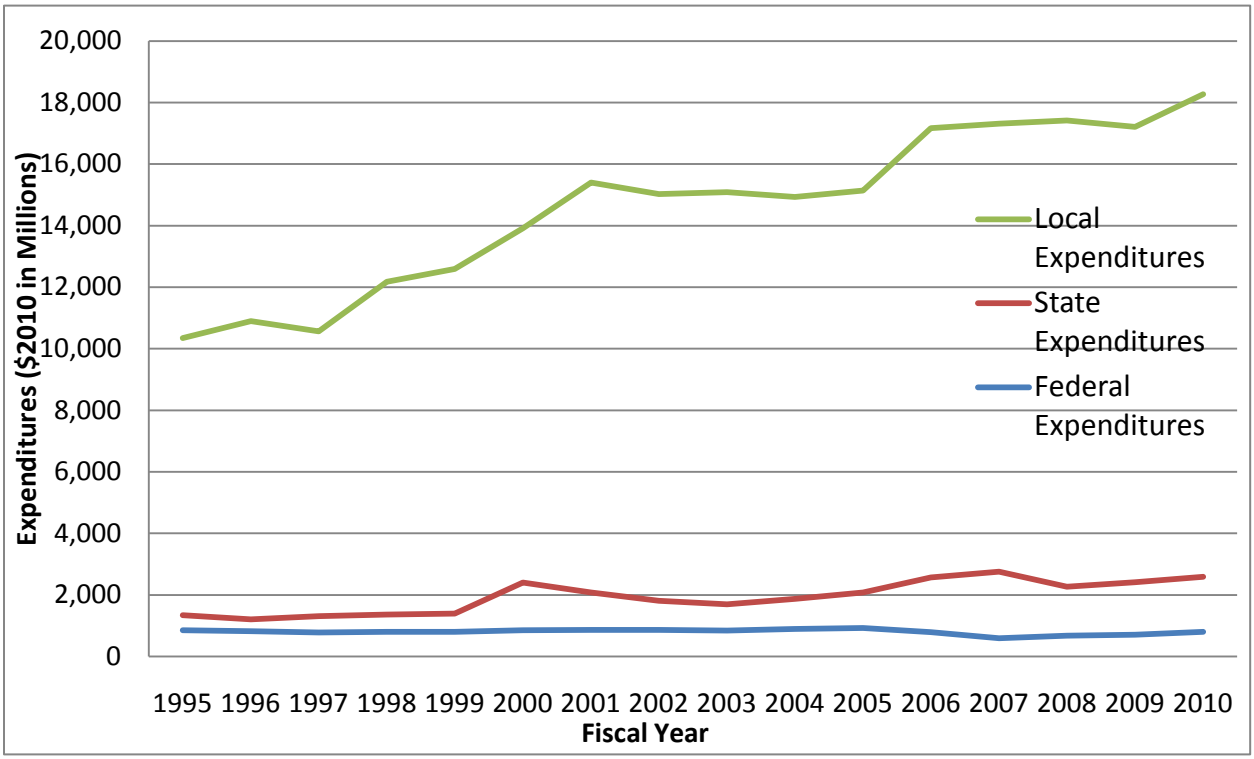
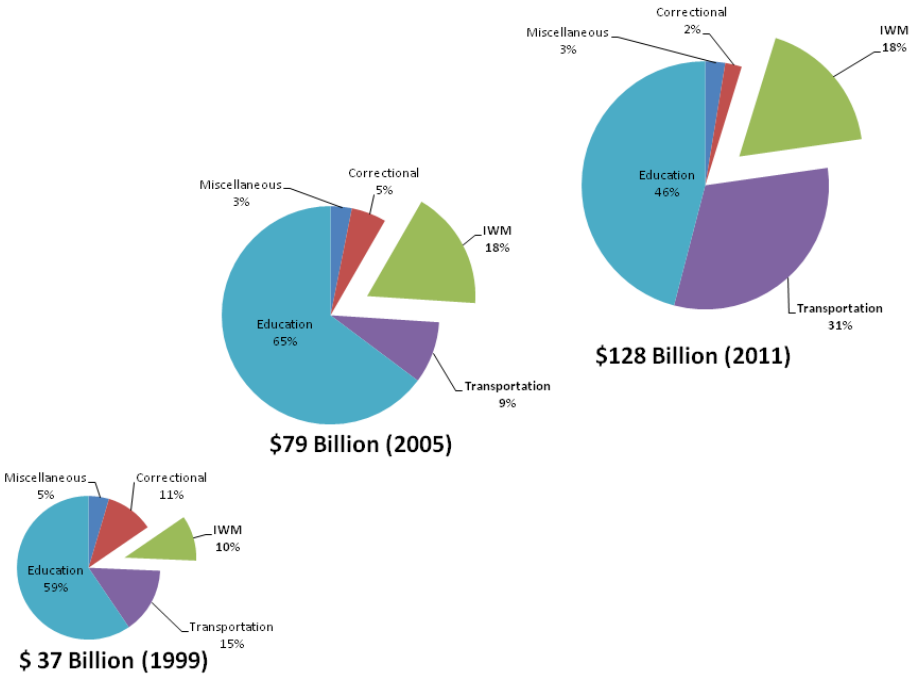


Figure 7-4 Total Authorized State General Obligation Bonds in California



Source: State of California 2010

Figure 7-5 General Obligation Water Bond History, 1970-2010

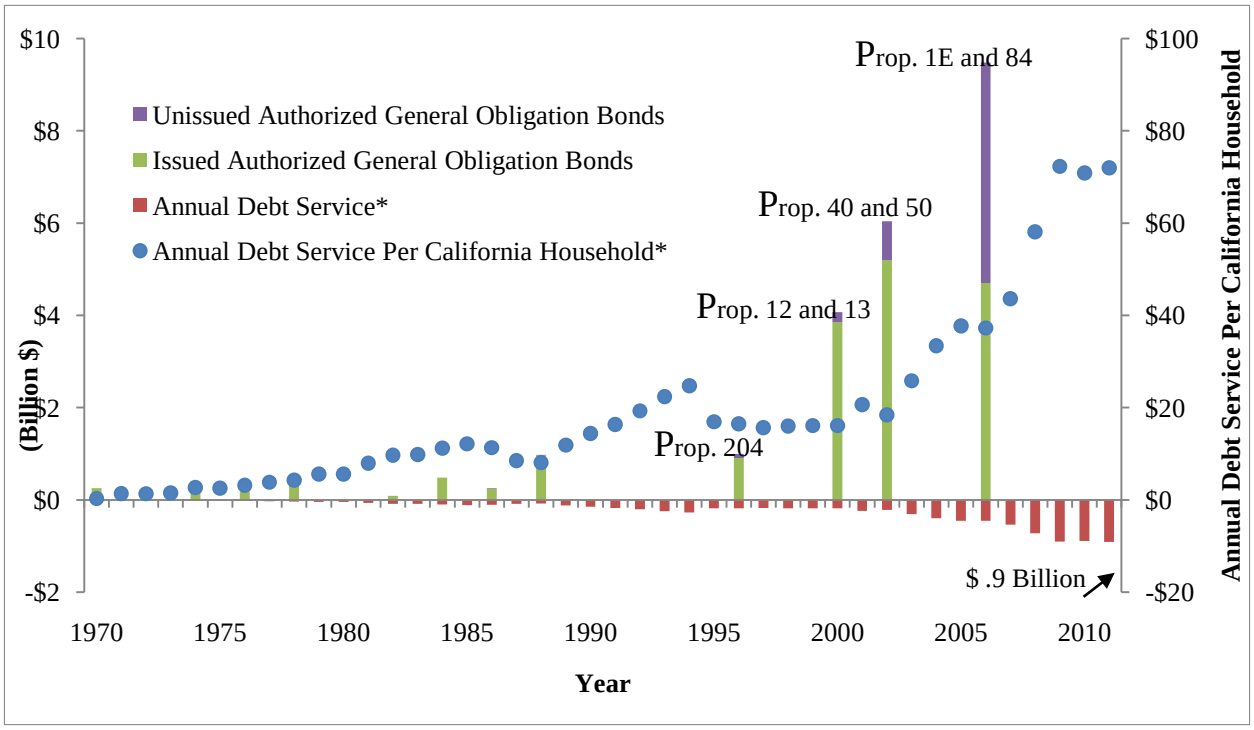


Figure note: Debt service is applicable to issued GO bonds only.
Source: Department of Finance 2012

Box 7-1 Taxes vs. Fees

Taxes are paid by the general public for governmental services that provide benefits to the general public, such as public safety. The payment is mandatory, everyone pays, and there does not need to be a nexus between the payer and service provided. The payer, as well as everyone else, receives a benefit.

Fees are paid for the specific government service that directly benefits the payer. The payer has a choice of whether to use the service.

Box 7-2 Federal Funding Sources

Several federal actions could provide funding for California integrated water management (IWM). Depending on actions by Congress, funding may be available to the State or local governments. Some of the proposed innovative approaches include:

- **Federal Water Infrastructure Trust Fund.** The Water Infrastructure Trust Fund, if established by Congress, would create a stable and long-term revenue stream to finance water infrastructure projects. The current proposal under consideration is H.R. 3145 and includes over $10 billion annually with a focus on clean water projects.
- **Water Infrastructure Finance Innovation Act (WIFIA).** The Water Resources and Environment Subcommittee has circulated a draft WIFIA bill (H.R. 3145) and held two hearings on the topic in 2012. One of the main benefits of the proposed program would be to provide low-cost capital to infrastructure projects.
- **National Infrastructure Bank.** An infrastructure bank manages capital and provides loans for infrastructure development. The most recent proposal, H.R. 402, would create a bank similar to the FDIC. The bank would be authorized to issue bonds and subsidies to infrastructure projects, borrow and, in turn, lend to commercial infrastructure projects, and purchase and sell infrastructure loans and securities on the market.
- **Private Activity Bonds.** Congress is considering modifying Private Activity Bond restrictions. Private Activity Bonds are tax-exempt bonds that are available for privately owned water facilities operated by a government unit or charge water rates that are approved by a subdivision of a community. Private agencies are typically not eligible for tax-exempt municipal bonds, which limits access to capital to finance new infrastructure projects.
- **Build America Bonds.** Congress is considering reinstating Build America Bonds. As part of the American Recovery and Reinvestment Act, Congress created Build America Bonds to encourage job creation through infrastructure projects. Eligible projects were not limited to infrastructure and did not allow for private company participation. The bonds stopped being issued in December 2010. Congress is considering reinstating the bonds to target water infrastructure projects.